Claims:

1. Tool head having tool holders that are adjustable essentially radially to an axis of rotation, and an adjusting device that is adjustable essentially axially to the axis of rotation, in which device the tool holders and the adjusting device correspond with one another by way of slide surfaces, in each instance, ***characterized in that*** the slide surfaces are essentially planar or have a constant radius of curvature parallel to the axis of rotation.

2. Tool head according to claim 1, ***characterized in that*** at least one slide surface (220, 208) has an inlay (209), which is preferably produced from a wear-resistant material.

3. Tool head according to claim 2, ***characterized in that*** the inlay (209) is a small hard metal plate.

4. Tool head according to one of claims 1 to 3, ***characterized in that*** an inlay (209) is replaceably fixed in place on the adjusting device and/or on the tool holders (204).

5. Tool head according to one of claims 1 to 4, ***characterized in that*** the adjusting device has a conical bushing.

6. Tool head according to claim 5, ***characterized in that*** the conical bushing is an adjuster ring (202).

7. Tool head according to one of claims 1 to 6, ***characterized in that*** a planar slide surface (208) of the adjusting device is disposed essentially parallel to a corresponding slide surface (220) of a tool holder (204), preferably a planar slide surface (220) of a tool holder (204).

8. Adjuster ring for adjusting a tool holder relative to an axis of rotation, whereby the adjuster ring has a conically configured inside for forming a slide bearing half shell, ***characterized in that*** the conical slide bearing half shell has an at least essentially planar slide bearing region.

9. Adjuster ring according to claim 8, ***characterized in that*** the planar slide bearing region is attached to the adjuster ring (202) in releasable and replaceable manner.

10. Adjuster ring according to one of claims 8 or 9, ***characterized in that*** the planar slide bearing region has an inlay (209) having harder material properties than the adjuster ring (202).

11. Cutting machine, particularly a peeling machine, for machining long work pieces (217), ***characterized by*** a tool head (201; 212) and/or an adjuster ring (202) according to one of the preceding claims.

12. Machine according to claim 11, having an advancing apparatus (320) having insertion rollers (304) for accelerating linear work pieces (306), particularly rods, pipes, round bars, wires, cables, and the like, along a machining axis (306) of a transport segment, in which the insertion rollers (304) are driven by means of an insertion roller shaft (301), in each instance, ***characterized in that*** at least one insertion roller shaft (301) is mounted eccentrically in a shaft accommodation (302).

13. Machine according to claim 12, ***characterized in that*** the shaft accommodation (302) is mounted to rotate about a shaft accommodation axis (313).

14. Machine according to one of claims 12 or 13, ***characterized in that*** the shaft accommodation (302) is a bearing bushing, and the bearing bushing is disposed to rotate about one of

its longitudinal axes, preferably about its middle longitudinal axis, in a holding device (303).

15. Machine according to one of claims 12 to 14, ***characterized in that*** a bearing body having a bearing for the insertion roller shaft (301) is guided on a holding device, that the bearing of the insertion roller shaft performs a movement about a component axis, having a rotation component, which lies in a plane that is disposed parallel to the work piece (306) and is penetrated by the main contact pressure direction, in which the insertion roller, in each instance, acts on the work piece.

16. Machine according to one of claims 12 to 15, ***characterized in that*** the axis of rotation (330) of the insertion roller shaft (301) is disposed relative to the axis of rotation (313) of the shaft accommodation (302), in such a manner that during a rotation of the shaft accommodation (302), the axis of rotation (330) of the insertion roller shaft (301) describes a cone (315) in the space (316).

17. Machine according to claim 16, ***characterized in that*** the cone (315) has a point (317) that is essentially located in an intersection (318) of the axis of rotation (330) of the

insertion roller shaft (301) and a perpendicular (334) of the machining plane, preferably essentially in an intersection (318) of the axis of rotation (330) of the insertion roller shaft (301) and the machining plane.

18. Machine according to one of claims 12 to 17, ***characterized in that*** the axis of rotation (330) of the insertion roller shaft (301) and the axis of rotation (313) of the shaft accommodation (302) enclose an angle (314) with one another.

19. Machine according to one of claims 12 to 18, ***characterized in that*** the axis of rotation (313) of the shaft accommodation (302) is disposed at a slant to the perpendicular (334) of the machining axis (306) of the transport segment.

20. Machine according to one of claims 12 to 19, ***characterized in that*** the shaft accommodation (302) has a bore for accommodating an insertion roller shaft (301) and the bore is disposed at a slant to the axis of rotation (313) of the shaft accommodation (302).

21. Machine according to one of claims 12 to 20, ***characterized in that*** the shaft accommodation (302) has a bore whose entry and exit openings are at different distances from the axis of rotation (313) of the shaft accommodation (302).

22. Machine according to one of claims 20 or 21, ***characterized in that*** an opening of the bore of the shaft accommodation (302) is disposed closer to the axis of rotation (313) of the shaft accommodation (302) on the face of the shaft accommodation (302) that faces the insertion rollers (304), than an opening of the bore on the face of the shaft accommodation (302) that faces away from the insertion rollers (304).

23. Machine according to one of claims 12 to 22, ***characterized in that*** the shaft accommodation (302) has a self-locking drive.

24. Machine according to claim 23, ***characterized in that*** the self-locking drive has a self-locking screw gear mechanism or worm wheel gear mechanism and/or a hydraulic regulating motor.

25. Machine according to one of claims 12 to 24 for machining linear work pieces (22), particularly rods, pipes, round bars, wires, cables, or the like, having an advancing device (3; 103), which has an advancing apparatus (4; 104) that is separably connected with an intake guide (5; 105), ***characterized in that*** the advancing apparatus (4; 104) and the intake guide (5; 105) are separably connected with one another by means of at least one quick-action device.

26. Machine according to claim 25, ***characterized in that*** the quick-action device has at least one wedge clamp element (14).

27. Machine according to one of claims 12 to 26, wherein the machine has an advancing device (4; 104), an intake guide (5; 105), and a peeling machine gear mechanism (13; 113), ***characterized in that*** not only the advancing apparatus (4; 104) but also the peeling machine gear mechanism (13; 113) can be separably connected with the intake guide (5; 105), independent of one another.

28. Machine according to one of claims 12 to 27, ***characterized in that*** the intake guide (5; 105) is directly and separably connected with a peeling machine gear mechanism (13; 113).

29. Machine according to one of claims 12 to 28, ***characterized in that*** the advancing apparatus (4; 104) and the intake guide (5; 105) can be displaced relative to one another, even in the installed state.

30. Machine according to one of claims 12 to 29, ***characterized in that*** a distance (29; 129) of more than 200 mm, preferably more than 500 mm, can be adjusted between the advancing apparatus (4; 104) and the intake guide (5; 105).

31. Machine according to one of claims 12 to 30, ***characterized in that*** the advancing device (4; 104) and the intake guide (5; 105) are fixed to one another releasably, by means of a bracing device (163).

32. Machine according to claim 31, ***characterized in that*** the bracing device (163) has at least one catch means (164, 165), one bracing element, one tie bolt and/or one index bolt (160, 161, 162).

33. Machine according to one of claims 25 to 32, ***characterized in that*** both the advancing apparatus (4; 104) and the

intake guide (5; 105) are mounted displaceably along a linear guide (7; 107).

34. Machine according to one of claims 25 to 33, ***characterized in that*** the intake guide (5; 105) has a twist-resistant case (41; 141), which preferably communicates with a linear guide (7; 107) by way of runner shoes (10, 46; 108, 109, 110).

35. Machine according to one of claims 25 to 34, ***characterized in that*** the advancing apparatus (4; 104) has a twist-resistant frame (32; 132), which preferably communicates with a linear guide (7; 107) by way of runner shoes (10, 46; 108, 109, 110).

36. Machine according to one of claims 25 to 35, ***characterized in that*** the advancing device (4; 104) and/or the intake guide (5; 105) have means for displacement.

37. Machine for machining linear work pieces, particularly rods, pipes, round bars, wires, cables, or the like, ***characterized by*** an advancing device according to one of claims 25 to 36.

38. Machine according to claim 37, ***characterized in that*** the entire advancing device (3; 103) or parts (4, 5; 104, 105) of it is/are separably connected with the remainder of the machine.

39. Machine according to one of claims 37 or 38, ***characterized by*** a linear guide (7; 107) on which an advancing apparatus (4; 104) and an intake guide (5; 105) are displaceably mounted, independent of one another.

40. Machine according to claim 39, ***characterized in that*** the linear guide (7; 107) is configured in such a manner that a distance (30; 130) of more than 200 mm, in each instance, preferably more than 500 mm, can be adjusted between the advancing apparatus (4; 104) or the intake guide (5; 105) and the work piece machining system.

41. Machine according to one of claims 37 to 40, ***characterized in that*** the advancing device (3; 103) or parts (4, 5; 104, 105) of it are releasably fixed on the work piece machining system by means of a bracing device (163).

42. Machine according to claim 41, ***characterized in that*** the bracing device (163) has at least one catch means (164,

165), one bracing element, one tie bolt and/or one index bolt (160, 161, 162).